

AGI	NAME	QC / ROOT DEVELOPMENT FUNCTION
AT3G20840	PLT1	Essential for QC specification and stem cell activity (1). <i>plt1</i> mutants have more columella layers and occasionally more QC cells. <i>plt1 plt2 ail6</i> triple mutants are rootless (2)
AT1G51190	PLT2	Essential for QC specification and stem cell activity (1). <i>plt2</i> mutants have increased columella cell numbers but not as many layers. <i>plt1 plt2 ail6</i> triple mutants are rootless (2)
AT5G10510	PLT3/ AIL6	<i>ail6</i> mutants have slightly shorter meristems than WT. <i>plt1 plt2 ail6</i> triple mutants are rootless (2)
AT2G47260	WRKY23	The WRKY23::WRKY23RNAi line shows significant stem cell niche disorganization (3)
	ARF10	ARF10 plays a role in restricting stem cell niche and promoting columella cell differentiation (4)
AT2G40470	LBD15	Expressed in the columella and the QC (5)
AT5G17800	MYB56/ BRAVO	Expressed in the QC (6) (7). Cell-specific repressor of QC divisions (7)
AT4G37940	AGL21	Enriched in the QC (6)
AT5G60850	OBP4	Negatively regulates root growth (8)
AT2G22630	AGL17	Enriched in the QC (6)
AT3G57670	NTT	NTT, WIP4, and WIP5 are required for the initiation of the root meristem; necessary for distal stem cell fate within the root meristem; expressed in the quiescent center and columella initials (9)
AT3G20880	WIP4	NTT, WIP4, and WIP5 are required for the initiation of the root meristem; necessary for distal stem cell fate within the root meristem; expressed in the quiescent center and columella initials (9).
AT1G12860	SCRM2	Enriched in the QC (6)

QUIESCENT CENTER

XYLEM

AGI	NAME	XYLEM INITIALS /ROOT DEVELOPMENT FUNCTION
AT4G37650	SHR	Required for the asymmetric cell divisions that form the ground tissue and for the specification of the endodermis (10)(11)
AT5G38480	GRF3	Reprograms root cells following infection (12)
AT4G36160	NAC076/ VND2	Specifically expressed in the xylem conducting vessels; overexpression activates expression of secondary wall biosynthetic genes (13).
AT2G22670	IAA8	Expressed in the xylem (14)
AT1G04550	IAA12/ BDL	Expressed in the xylem. <i>bdl</i> mutation results in lack of primary root meristem (15).
AT5G60690	REV	Expressed in the xylem. Regulate tissue pattern formation; in the <i>phb, phv</i> and <i>rev</i> triple mutant, phloem surrounds xylem (16). PHB, PHV and REV regulate vascular cell differentiation (17) (18).
AT2G34710	PHB	
AT4G14560	IAA1	Expressed in the xylem (19)
AT5G66320	GATA5	Expressed in the xylem, specifically in the vascular cylinder of the root tip; induces VND7 expression, which is involved in secondary wall synthesis (20)
AT3G25710	BHLH32/ TMO5	Marker used for our xylem sorting experiment. Acts downstream of MP in root initiation (21). The TMO5/LHW dimer triggers periclinal divisions in the vascular tissue, promotes vascular tissue formation in the embryo, and controls indeterminate growth of the vascular tissue (22).

SCN (In addition to all of the above)

AGI	NAME	STEM CELL NICHE / ROOT DEVELOPMENT FUNCTION
AT5G17430	BBM	Expressed in the QC and columella stem cells; PLT1, PLT2, BBM, PLT3/AIL6 function redundantly in root meristem and embryo differentiation (2). Implicated in differentiation of embryonal stem cells from somatic stem cells (23)
AT1G19850	MP	mediates embryo axis formation and vascular development (24)
AT2G46990	IAA20	Involved in a feed forward loop with MP that could stabilize auxin response during vascular patterning and differentiation of xylem (25)
AT4G23750	CRF2/ TMO3	Expression dependent on MP in cells relevant for root initiation (21)
AT5G53290	CRF3	Overexpression spontaneously initiates callus formation (26)
AT5G03150	JKD	Required for radial patterning, QC specification, and stem cell maintenance; JKD and MGP interact with SCR and SHR in a feed-forward loop in the stem cell domain (27). Together with other BIRD factors, it organizes the ground tissue after embryogenesis (28)
AT1G03840	MGP	Counteracts JKD function; JKD and MGP interact with SCR and SHR in a feed-forward loop in the stem cell domain (27). Together with other BIRD factors, it organizes the ground tissue after embryogenesis (28)
AT3G54220	SCR	Required for radial organization of the root (29) and for distal specification of the QC (30)
AT3G20550	DDL	(ddl) plants develop slow, and produce defective roots, shoots, and flowers, suggesting DDL plays a role in early organ development (31)
AT3G50870	MNP	Enriched in the QC (6)
AT1G26870	FEZ	Expressed in the columella, control the orientation of cell division plane in the root stem cells (32)
AT1G79580	SMB	Expressed in the columella, control the orientation of cell division plane in the root stem cells (32)
AT5G39820	NAC094	Enriched in the columella stem cells (5)
AT4G32890	GATA9	Enriched in the columella stem cells (5)
AT5G57420	IAA33	Enriched in the columella stem cells (5)
AT1G21340	AT1G21 340	Enriched in the columella stem cells (5)
AT5G57660	COL5	Enriched in the columella stem cells (5)
AT2G41070	EEL	Enriched in the columella stem cells (5)
AT1G32640	MYC2	Represses <i>PLT1/PLT2</i> during Jasmonate Modulation of the Root Stem Cell Niche (33)
AT5G20240	PI	Enriched in the QC (6)
AT1G69490	NAP	Enriched in the QC (6)
AT1G16070	TLP8	Enriched in the QC (6)

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